

**DEPARTMENT OF ENERGY  
2014 QUADRENNIAL ENERGY REVIEW**

**Comments of Xcel Energy Services Inc.**

Xcel Energy Services Inc. (XES) appreciates this opportunity to provide comments to the Department of Energy (DOE) regarding this first installment of the Quadrennial Energy Review (QER) focused on energy transmission, storage and distribution infrastructure (TS&D), the network that links energy supplies to intermediate and end users.

XES's comments are submitted on behalf of the Xcel Energy Inc. (Xcel Energy) and the Xcel Energy Operating Companies: Northern States Power Company-Minnesota, Northern States Power Company-Wisconsin, Public Service Company of Colorado, and Southwestern Public Service Company. These companies serve more than 3.4 million electric customers and 1.9 million natural gas customers in portions of Colorado, Michigan, Minnesota, New Mexico, North Dakota, South Dakota, Texas, and Wisconsin.

Xcel Energy is an environmental leader: as of 2013, we have reduced CO<sub>2</sub> emissions by 19% from 2005 levels, with a 31% reduction expected by 2020. Xcel Energy is also a leader in the integration of large scale intermittent renewable generation. Xcel Energy delivers more wind energy to its customers than any other utility in the country; in 2013, 13.7% of the electricity we delivered company-wide was from wind generation. In one particular hour in 2013, Public Service Company of Colorado served 60% of its customers' load with wind generation. Xcel Energy is ranked fifth in terms of the amount of solar energy delivered to customers.

Xcel Energy has sixth largest electric transmission grid in the country as well as the sixth largest natural gas local distribution system in the country. But not only do the Xcel Energy Operating Companies own and operate significant energy infrastructure, they are keenly interested in policies that advance the interests of users of energy infrastructure since they are heavily dependent on infrastructure owned and operated by others.

This nation has the most efficient, cost-effective, and resilient energy infrastructure ever created. This infrastructure is key to economic growth and the well-being of all Americans. Nevertheless, numerous challenges face the energy industry and policy makers, including enhancement and modernization of aging gas and electric grid components, expansion of the gas delivery system to meet needs of a changing fuel mix, system security and resiliency in the face of natural and man-made threats, and new and evolving technologies that will utilize the grid in ways previously unseen. Solutions to address these challenges must be grounded in policies that recognize the essential nature of the electric and gas transmission and distribution grids to sustainable, affordable, clean, and secure energy supplies.

Xcel Energy is a member of the Edison Electric Institute (EEI) and supports the comments filed in this proceeding by EEI. In addition to the comments provided by EEI, Xcel Energy provides the following more specific input to DOE.

### **Impact of EPA Rules**

Environmental regulation is one of the most significant challenges faced by electric and gas utilities today. In particular, regulations covering air emissions from power plants are now a major factor driving an unprecedented shift away from coal-fired generation and toward greater reliance on gas-fired and renewable generation. Roughly 60 GW of coal, about 1/5 of the US coal fleet, are expected to retire under current environmental

regulations. Xcel Energy's experience is similar to this national trend. Under programs in Minnesota and Colorado since 2005 and continuing through 2018, we have been retiring older, less-efficient coal-fired power plants, retrofitting more economic coal-fired plants for continued operation, extending the operating lives of nuclear plants, and adding natural gas and renewable capacity to our system. From these experiences, we understand that appropriate timing of regulation, and coordination among regulators are two key factors needed to maintain cost-effective and reliable electric service while seeking environmental improvements.

EPA's proposed regulation of existing source power plants under Section 111(d) of the Clean Air Act may be the most significant air regulation yet. EPA's modeling indicates that roughly 50 GW of additional coal-fired generation would be retired in the US under this rule as proposed, or nearly double the current expected retirements. Further, the proposed rule's expansive and unprecedented scope that reaches into dispatch methodologies and renewable energy development further underscores the potential changes to the power sector. For instance, EPA assumes that the capacity factor of the US natural gas combined-cycle fleet could ramp up from a national average of 45% to 70%. While the specific steps EPA has employed in the rule are target-setting instruments, with states and utilities able to chart their own course toward targets, the dramatic changes implied by these steps illustrates how infrastructure might be affected.

We are still analyzing this complex rule and its effects on the Xcel Energy Operating Company systems, and also waiting on further information such as the final rule and individual state compliance plans, so it is difficult to identify specific infrastructure concerns today. However, we can highlight two factors we feel merit DOE's attention. First, the potential impact on electric and natural gas infrastructure ought to be fully understood

across all appropriate branches of the federal government before the rule is finalized. We recommend that DOE collaborate more fully with EPA on infrastructure issues as part of the rule finalization process. Further, the Federal Energy Regulatory Commission (FERC) should also work closely with EPA to ensure reliability of the grid.

Second, the timing of EPA's rule is extremely challenging for the power sector. There will be little practical ability to change utility plans between the final state compliance plans in 2017-2018 and the proposed rule's first compliance year in 2020, because it requires 5-10 years to permit and construct most power plants, and transmission permitting and construction typically takes longer still. Further, many of our states see targets exceeding 35% CO<sub>2</sub> reductions from 2012 levels, and individual utility systems often cross state boundaries, further complicating individual state plans. While we have ongoing emissions reductions underway, the final drop to a 2020 target is still too dramatic to be achieved in some of our states. We recommend that DOE evaluate the needed infrastructure – generation, transmission and supporting gas delivery infrastructure – that would be needed to comply with the proposed rule. The needed infrastructure to accomplish these reductions may not be available by 2020 in many places. DOE should help EPA to understand this timing concern as EPA finalizes the rule.

### **Gas Infrastructure Replacement**

Xcel Energy places paramount importance on public safety and as a result since 2008 has been making significant investments in replacing and modernizing its gas distribution infrastructure. Accelerated replacement of aged gas pipeline infrastructure is necessary not only from the standpoint of public safety but has the added benefit of supporting environmental goals through reductions in methane emissions. The natural gas distribution industry has reduced methane emissions by 20% since 1990 through implementation of best

practices and safety-driven pipeline replacements. We are also part of the Natural Gas Downstream Initiative focused on proactively addressing gas infrastructure issues, in coordination with environmental groups and university researchers.

Unfortunately, existing regulatory paradigms are not conducive to supporting these types of focused, proactive efforts because of a lack of clear mechanisms to ensure that utility investments in gas infrastructure are fully and timely recoverable. State and federal policy makers must work together to ensure that ratemaking policies support this type of investment through timely and comprehensive cost recovery mechanisms and potentially even incentives such as those authorized by Congress in the Energy Policy Act of 2005 to incent expansion of the electric transmission grid.<sup>1</sup>

## **Financial Issues**

### **a. Securitization**

Some parties have suggested that securitization may be an option to address the significant capital spend associated with some types of infrastructure improvement projects. While securitization may have its place in some contexts, it is not a tool that should be applied broadly to fund energy infrastructure projects. Capital markets in general are not receptive to securitization where it cannibalizes shareholder equity and replaces it with debt. Significant use of securitization in the natural gas and electric industries could erode the future earnings potential of the remaining assets, which could cause the credit quality of companies in those industries to degrade, increasing their borrowing costs, and significantly devaluing shareholder equity.

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<sup>1</sup> See Energy Policy Act of 2005, section 1241 adding new section 219 to the Federal Power Act regarding transmission infrastructure investments.

## **b. Return on Equity**

Robust and expanded electric and gas infrastructures are an essential aspect of integrating new resources to meet clean energy goals. However, the risk associated with grid investments is increasing as the country moves toward a cleaner, more distributed generation mix. The risk to companies like Xcel Energy is further heightened by new policies adopted by the FERC in Order No. 1000 encouraging competition for transmission development projects.<sup>2</sup>

Equity investors demand that their shareholder returns reflect the overall level of competition for capital as well as the relative risks of their investments. Unfortunately, the anomalous economic conditions that arose during the Great Recession—and that are continuing as the economy recovers as a result of Federal Reserve policies—have resulted in significant downward pressure on calculated regulatory returns on equity (ROEs) below levels required to reflect shareholder risk, contrary to standards established in *Hope* and *Bluefield*,<sup>3</sup> particularly for electric utilities. Solid policies that correct for these anomalous conditions are vitally important to ensuring a stable footing for investment in electric transmission infrastructure. In that regard, the DOE should encourage FERC to:

- Allow greater flexibility to establish returns on equity (ROEs) at the upper end of the range of reasonableness
- Allow greater flexibility in determining proxy groups used to establish growth rates
- Ensure that ROE caps do not undermine the objectives of either Section 219 of the Federal Power Act which directed FERC to incent transmission development

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<sup>2</sup> *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, FERC Stats. & Regs. ¶ 31,323 (2011), *order on reh'g*, Order No. 1000-A, 139 FERC ¶ 61,132, *order on reh'g*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012), *aff'd sub nom. S. C. Pub. Serv. Auth. v. FERC*, No. 12-1232, 2014 WL 3973116 (D.C. Cir. Aug. 15, 2014).

<sup>3</sup> *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923), and *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944),

or shareholders who invested in transmission with the expectation of ROE incentives

- Take decisive action to mitigate the financial uncertainty associated with “serial” ROE complaints by clarifying, consistent with FERC precedent, that the “15 month refund rule” under Section 206 of the Federal Power Act precludes serial complaint proceedings.

## **Value of the Grid**

One of the key issues associated with 21<sup>st</sup> century energy challenges is the need to ensure that the value of the grid is clearly recognized and costs of that grid are properly allocated to all beneficiaries.

Solar and other renewables are an essential and growing part of Xcel Energy’s energy supply portfolio and the products that we offer to meet our customers’ needs and interests. To attract customer-sited solar development, policies such as net metering and incentive programs have been put in place to encourage solar development in a burgeoning market. It is important that we continue to examine these policies and programs, and ensure all customers pay for the energy services and system infrastructure they use.

If the development of solar power is not done in the right way—with the most cost-effective technologies and with policies that fairly allocate costs—there is a potential to raise energy prices for those customers who cannot or do not want to participate. Many of our policymakers encourage renewable development to reduce emissions, and yet an unbalanced policy, such as those that provide lucrative incentives for customer sited distributed generation, may select more expensive renewable energy resources over other resources that are cost competitive and provide more value to our customers.

## **Gas/Electric Coordination**

Xcel Energy's ability—and the country's ability—to effectively increase the amount of intermittent renewable generation and meet CO<sub>2</sub> emissions reduction requirements is heavily dependent on the availability of flexible natural gas-fired generation. Significant coordination between policy makers and the gas and electric industries will be required to ensure that natural gas is available to meet growing electric generation needs at a reasonable cost.

Continuation of policies that allow recovery of natural gas resources using unconventional technologies is critical to ensuring adequate supplies of natural gas at a reasonable cost. Further, state and federal policies must ensure that gas-fired generating plants, the pipelines that serve them and the electric transmission lines that then deliver electricity to customers, can be built in a timely manner. The federal government has a key role to play because in many cases pipelines and transmission lines will cross federal lands, necessitating streamlined processes for obtaining siting authority and rights-of-way from federal agencies.

We expect over time that system planners from both industries will better learn the key attributes and operational characteristics of each product to best integrate and optimize resources and maintain reliability on both systems. In the planning and construction horizon, it will be important that new gas pipelines and storage facilities be designed for use that is consistent with emerging needs that will use equipment differently than it is used today (such as the frequent start and stop requirements of gas-fired generation) and for emergency supply needs as well as anticipated changes in peak demand events.

During daily operations, control rooms will need the capability to perform local planning and modeling to ensure reliability as electric generation needs change on a real-time



basis. Effective management of daily operations will demand ongoing dialogue between gas and electric system operators, and policy makers should refrain from taking steps that limit the ability for that dialogue to occur.

The reliability of fuel supply to gas fired generation depends on pipelines being able to accommodate the increasingly variable nature of demand. This requires a considerable investment in infrastructure necessary to provide services to ensure firm delivery of fuel for ratable and non-ratable flows. While this investment has been made by utilities in many areas of the country, a substantial portion of the nation's gas-fired generation is still served on an interruptible basis, especially in regions served by regional transmission organizations (RTO). Policies designed to incent investment in pipeline infrastructure are needed to move generation into firm fuel supply arrangements. For example, many RTOs implement firm load shedding during capacity shortages to Market Participants on a pro-rata basis instead targeting the required load relief to those entities that are deficient. By changing their policies to target the deficient entities, RTOs would properly assign the consequences of generation capacity shortages caused by gas fuel constraints to those generators or utilities not paying for firm gas transportation service.

Optimizing alignment of the daily gas pipeline nomination process with the timelines for identifying electric generating units that will be used to serve load on a day ahead and intra-day basis will facilitate more reliable electric grid operations by ensuring that pipeline capacity may be scheduled when needed if the need for gas at a plant is identified later in the daily process. FERC is leading an effort to better optimize alignment of the gas and electric days. Xcel Energy is a participant in this effort and fully supports the goals of FERC's activities. Xcel Energy notes that once FERC has established new timing for the gas and electric days, significant changes to technology and processes will be required to implement

those changes. Sufficient time must be allowed to parties to reconfigure their technology and processes to effectively operate under the new gas and electric days.

Among the options being evaluated by FERC is the addition of more gas pipeline nomination cycles in the gas day. While better alignment of gas and electric operations may improve reliability for electric utilities (and other generators) and their customers, these steps alone will not provide electric utilities with the flexibility needed to ensure complete reliability of their natural gas fuel supply. This is because firm pipeline capacity that has not yet been scheduled by the primary capacity holder is subject to being subscribed as secondary firm service by other shippers, which is not “bump-able” in any intraday cycle.

Secondary firm service occurs where a holder of firm gas transmission capacity rights on one line segment “redirects” those firm rights to another location. Unlike the electric industry, firm gas pipeline capacity can be redirected even where such redirection would utilize firm capacity rights held by another shipper, precluding that other shipper from utilizing its firm rights later in the gas scheduling process.

A mechanism allowing a pipeline customer with firm transportation service to reserve its capacity for the entire gas day is needed to address this gap. Such a service would improve electric service reliability and make intraday cycles more usable for firm capacity holders as a tool to manage system contingencies for the benefit of electric consumers. This type of service also has the potential to incent development of much-needed new pipeline infrastructure, since it makes holding firm transportation capacity more valuable to the customer. The approach recommended by Xcel Energy is a market-driven solution to an existing challenge that would support federal policies supporting development of natural gas generation.

#### **Role for Federal Funding of Grid Technologies and Processes**

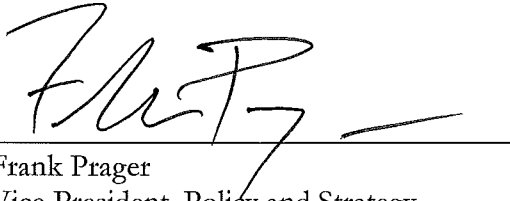
Reliability coordination services in the Western Interconnection are provided by Peak Reliability (Peak), a non-profit entity serving Balancing Authorities and Transmission Operators throughout the Western Interconnections and portions of Canada and Mexico. As the Reliability Coordinator, Peak provides real-time interconnection-wide oversight of the electric transmission grid, coordinating necessary real-time and seasonal planning and modeling, and ensuring that data critical to the reliable and efficient operation of the grid is shared appropriately.

An opportunity exists for DOE to support enhanced grid reliability in the west through funding contributions to an Enhanced Curtailment Calculator and a State Calculator. The Enhanced Curtailment Calculator would be used by Peak to more precisely identify transactions that are overloading transmission lines, resulting in more targeted curtailment instructions and more efficient use of the grid. A State Calculator that calculates actual system flows rather than estimated flows would enable more effective use of synchrophasers that have been installed throughout the west with the aid of DOE funding, further increasing grid utilization and enhancing reliability.

## **Conclusion**

Xcel Energy supports efforts by DOE and other federal agencies to identify policy solutions needed for the nation's new energy future. Those policy solutions must appropriately balance needs of utilities and customers and reflect the need to preserve and enhance the nation's gas and electric infrastructure. Further, policy solutions must be developed through an open and collaborative stakeholder process that takes into account the perspectives and experience of entities such as Xcel Energy. We appreciate the opportunity to submit written comments on these important issues.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Frank Prager', with a horizontal line extending to the right.

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